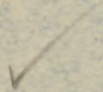


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Burnett (S.M.)

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THE COMPARATIVE FREQUENCY OF EYE DIS-  
EASES IN THE WHITE AND COLORED  
RACES IN THE UNITED STATES

BY



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OPHTHALMIC AND AURAL SURGEON TO THE GARFIELD MEMORIAL HOSPITAL AND TO THE  
CENTRAL DISPENSARY, WASHINGTON, D. C.

[Reprinted from the ARCHIVES OF OPHTHALMOLOGY, Vol. xiii., No. 2, 1884]







THE COMPARATIVE FREQUENCY OF EYE DISEASES IN THE WHITE AND COLORED RACES IN THE UNITED STATES.<sup>1</sup>

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I N August, 1619, a Dutch vessel, with twenty African slaves on board, sailed up the James River in Virginia, and discharged its cargo at Jamestown. This was the first introduction of the negro savage among civilized white men in America, and from this ship-load and the others which followed, up to the time when the slave-trade in America was abolished, sprang with few exceptions all of that race at present to be found in Virginia, Maryland, and the District of Columbia. This is the most important instance in modern times where human beings in a state of savagery have been brought suddenly and on an extensive scale into the environment of the highest civilization and culture. The influence exerted by this civilization on their physical, mental, and moral condition is of the highest ethnographic interest, and has been studied, among others, by Nott and Gliddon.<sup>2</sup> But so far as my knowledge of American medical literature extends, no statistics have been published showing the comparative frequency of various diseases in these two races, so widely separated in the scale of civilization, when placed as

<sup>1</sup> Read, in abstract, before the Anthropological Society, Washington, May 20, 1884.

<sup>2</sup> "Types of Mankind," by J. C. Nott and G. R. Gliddon, Philadelphia, 1854.

nearly as possible in the same surroundings. It is a matter of scientific and medical interest to know how far this change of condition has influenced their susceptibility to an immunity from certain diseases; and their study may tend to show us how far certain doubtful diseases are climatic, zymotic, or constitutional. It has long been believed that the negro is prone to certain diseases, and to a greater or less extent free from others. He is but little affected, for example, with malignant paludial fevers, and is more liable to strumous and tuberculous affections, and scarlet-fever is much less fatal among the negro than the white;<sup>1</sup> but of detailed statistics on most of these points, I believe there are none.

That this difference in the susceptibility to disease should extend to the eye would seem highly probable, reasoning *a priori* on the evolution hypothesis, but no investigation in America has up to this time furnished any statistical evidence of the fact.

When I was placed in charge of the Eye and Ear Department of the Central Dispensary, I began to keep my records with a view of accumulating material for such statistics, each patient being entered as "white" or "colored." When there was any admixture of negro blood, even to a small extent, the patient was registered as "colored." This, it must be confessed, is hardly fair to the colored race, but under the circumstances it seemed unavoidable.

For the formation of the following table I have taken the three last published reports of my service at that institution. I have not drawn from any other source, because I wished to take as a basis of comparison those cases where the surroundings and modes of life were as nearly as possible the same. It will be observed that the numbers are small in comparison with those furnished by some of our great ophthalmic institutions, but they have the advantage of all having been examined by the same observer, and with great care, in view to this statistical presentation. I may be allowed to observe at the outset that it is hardly hoped that these

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<sup>1</sup> In looking over the report of the Health Officer of the District of Columbia for 1883, I find that during the last five years the deaths from scarlet-fever per thousand of population have been for whites, 499, for the negroes, 139.

statistics will definitely settle any point. They are offered more with the design of inducing the publication of other observations in the same field of inquiry, not only in the United States, but also in other countries where the African race is to be found.

The total number of cases recorded was 2,325, of which 1,514 were colored, and 811 white (roughly ONE THIRD white and TWO THIRDS colored), and they have been classified according to the diseases as follows :

*Diseases of the Conjunctiva.*

	White	Colored
Conjunctivitis, catarrhal . . . . .	149	304
"    purulent . . . . .	8	22
"    scrofulosa . . . . .	17	83
Ophthalmia neonatorum . . . . .	4	5
Hyperæmia of the conjunctiva . . . . .	8	9
Trachoma . . . . .	44	
Pterygium . . . . .	9	7
Ecchymoses of conjunctiva . . . . .	3	7
Tumors . . . . .	2	5
Episcleritis . . . . .	5	15
Chemosis of conjunctiva . . . . .		2
Circumcorneal hypertrophy of conjunctiva . . . . .	3	5
Tumor of curuncle . . . . .	1	3
Foreign body in conjunctiva . . . . .	1	2
Pinguecula . . . . .	1	6
Wounds and injuries . . . . .		1
Varix of cul-de-sac . . . . .	1	
	<hr/> 256	<hr/> 476

*Diseases of the Cornea.*

	White	Colored
Keratitis . . . . .	50	228
"    scrofulosa . . . . .	14	48
Leucoma corneæ . . . . .	28	83
"    adherens . . . . .	4	14
Foreign bodies in cornea . . . . .	12	10
Ulcer of cornea . . . . .	16	39
Staphyloma . . . . .	2	9
Kerato-iritis . . . . .	2	8
Abscess of cornea . . . . .	4	12
Deposit of lead in cornea . . . . .	1	
Keratoconus . . . . .		1
Trachomatous pannus . . . . .	2	
Tumor of corneal margin . . . . .		1
Traumatic rupture of cornea . . . . .	6	4

Keratitis bullosa . . . . .	1
Burn of, from lime . . . . .	1
Sloughing of cornea . . . . .	1
	<hr/>
	141
	<hr/>
	460

*Diseases of the Iris, Choroid, and Vitreous.*

	White	Colored
Iritis . . . . .	17	75
Choroiditis . . . . .	11	12
Closure of pupil . . . . .	3	6
Sclerotico-choroiditis . . . . .	1	3
Albinism . . . . .	1	
Cyclitis . . . . .	5	4
Opacities of vitreous . . . . .	1	2
Prolapse of iris . . . . .	2	6
Hemorrhage into vitreous . . . . .	1	
Mydriasis . . . . .		6
Iritis, traumatic . . . . .		1
Sarcoma of choroid . . . . .		1
Tubercles in ciliary body and iris . . . . .		1
Rupture of choroid . . . . .		1
Cyst of the iris . . . . .	1	
Tubercular tumor of the choroid . . . . .		1
Muscæ volitantes . . . . .	1	3
	<hr/>	<hr/>
	44	122

*Diseases of the Lachrymal Apparatus.*

	White	Colored
Dacryocystitis . . . . .	13	28
Eversion of puncta . . . . .	3	1
Stricture of nasal duct . . . . .	12	15
Tumor of lachrymal gland . . . . .		1
	<hr/>	<hr/>
	28	45

*Diseases of the Lens.*

	White	Colored
Cataract, senile . . . . .	38	68
“ traumatic . . . . .		6
Dislocation of lens . . . . .		2
Nuclear cataract . . . . .	1	
	<hr/>	<hr/>
	39	76

*Diseases of the Lids.*

	White	Colored
Blepharitis . . . . .	84	83
Entropion . . . . .	11	1
Trichiasis . . . . .	3	
Distichiasis . . . . .		2
Abscess of lid . . . . .	2	3

Emphysema of lid . . . . .		1
Ptosis . . . . .	1	3
Wounds of the lid . . . . .	2	1
Chalazion . . . . .	16	63
Ectropion . . . . .	1	5
Hordeolum . . . . .	3	7
Tarsitis . . . . .	2	
Blepharospasm . . . . .	1	
Tumors . . . . .	4	5
Lupus of the lids . . . . .	1	
Ankyloblepharon . . . . .		1
CEdema of lids . . . . .	1	4
Herpes of lids . . . . .	1	1
Ulcer of lids . . . . .	2	
Eczema of lids . . . . .	1	2
Epithelioma of lids . . . . .	1	
Symblepharon . . . . .		2
	137	184

*Diseases of the Muscles.*

	White	Colored
Paralysis of external rectus . . . . .	3	5
"    " 3d pair . . . . .	2	
"    " sup. oblique . . . . .		1
"    " all the muscles . . . . .	1	
Strabismus convergens . . . . .	36	3
"    divergens . . . . .	1	2
Nystagmus . . . . .	2	
Paralysis of orbicularis . . . . .		1
	45	12

*Diseases of the Globe and Orbit.*

	White	Colored
Phthisis bulbi . . . . .	5	13
Hydrophthalmus . . . . .		1
Panophthalmitis . . . . .	3	9
Symp. ophthalmia . . . . .	3	3
Exophthalmus . . . . .	2	1
Periostitis of the orbit . . . . .		1
Tumor of the brow . . . . .	1	1
"    "    " orbit . . . . .		1
Supra-orbital neuralgia . . . . .	3	3
Abscess of the orbit . . . . .	1	1
Gun-shot wound of the orbit . . . . .		1
Orbital cellulitis . . . . .		1
Enlargement of the frontal sinus . . . . .	1	
Foreign body in eye . . . . .	2	
Wound of globe . . . . .		1
	21	37

*Diseases of the Optic Nerve and Retina, and Glaucoma.*

	White	Colored
Atrophy of optic nerve . . . . .	14	13
Retinitis albuminurica . . . . .	2	5
Amaurosis . . . . .	1	7
Retinitis sympathetica . . . . .		1
"    specifica . . . . .	3	3
"    pigmentosa . . . . .	1	2
Neuro-retinitis . . . . .		3
Myxoma of optic nerve . . . . .	1	
Glaucoma simple . . . . .	4	14
"    inflam. . . . .	1	2
"    secondary . . . . .		1
Hyperemia of retina . . . . .	2	2
Glioma of retina . . . . .		1
Retina, detachment of . . . . .	2	
	<hr/> 31	<hr/> 54

*Anomalies of Refraction and Accommodation and Vision.*

	White	Colored
Asthenopia . . . . .	5	7
Hypermetropia . . . . .	27	19
Astigmatism . . . . .	7	4
Hemianopsia . . . . .		1
Hemeralopia . . . . .	1	4
Paralysis of accommodation . . . . .	1	
Myopia . . . . .	18	6
Presbyopia . . . . .	6	4
Diplopia . . . . .	1	2
Color-blindness . . . . .	1	
Mydriasis . . . . .	1	
Nyctalopia . . . . .	1	1
	<hr/> 69	<hr/> 48

## COMMENTS.

Taking CONJUNCTIVAL DISEASES as a whole, they are of about the same relative frequency in the two races. Of *scrofulous conjunctivitis* (which includes herpes of the conjunctiva of the sclera and cornea) the proportion is very much larger in the colored race. In fact all the forms of so-called "*strumous ophthalmia*" are relatively more common among the negroes. *Pterygium* does not seem to be so common. The slight difference in the number of cases of *ophthalmia neonatorum*, *episcleritis*, and *circumcorneal hypertrophy of the conjunctiva* can be looked upon as purely accidental.

When, however, we come to *trachoma* we are confronted with the remarkable fact that whereas the whites had forty-four cases, the negroes *had none*, though their proportional share would have been at least eighty. This is too great a discrepancy to be accounted for by a mere coincidence. In 1876, in a paper read before the Internat. Oph. Congress in N. Y., on "Trachoma as Influenced by Race," I called attention to the fact that, according to my observation, the negro seemed to enjoy an immunity from this disease.

The accuracy of this observation was called in question by Dr. H. D. Noyes, who claimed that they had "colored trachoma" in N. Y. I was not prepared on that occasion to support my position by any statistics, and these that I now offer are the first that I have been able to collect since that time, and to my mind they are conclusive. I would not go so far as to say that the negro *never* has trachoma; I can only say that I have never seen a genuine case of that disease in that race—even among the mulattoes. They have papillary conjunctivitis, which is often classed under the general term "granular lids," but clinically that is a very different disease from the one which is known and recognized under the name of trachoma. About the histological peculiarities of trachoma; in what it consists, and of its exciting cause, there are various opinions. We have not time here to discuss the question as to whether the trachoma follicle is produced by inflammatory alterations in the mucous membrane, or whether it is a special formation,<sup>1</sup> or whether it is but a modified form of purulent conjunctivitis, as is held by Arlt.<sup>2</sup>

The *clinical* features of genuine trachoma are unmistakable. It is an affection of the conjunctiva, usually chronic in its character, attended with remissions and exacerbations, extending most frequently through a number of years, and resulting, with very few exceptions, whether left to itself or under any form of treatment, in a greater or less loss of substance of the conjunctiva, which is replaced by cicatricial

<sup>1</sup> See exhaustive papers by Mandelstamm in *Grafe's Archiv*, xxix., 1, and by Raehlmann, *ib.*, xxix., 2, in which the different views from a histological standpoint are brought down to date.

<sup>2</sup> *Klin. Darstell. d. Krankheit d. Auges.*, '81.

tissue. Such affection of the conjunctiva, which forms from four to six per cent. of all the cases presenting themselves for treatment at the eye clinics of the principal Eastern cities of the United States, I have not seen—in a single instance—in the negro.

If it should turn out that the negro does not suffer from trachoma, even when the surrounding conditions are such as usually develop it in other races, we have a new element that must be taken into account in studying that most important eye-affection. We can then no longer regard it as a mere local disease, to be treated by local remedies alone. It must be considered as the expression of a dyscrasia. In their anxiety to find a local specific for trachoma, investigators seem to have forgotten the possibility of a general cause lying back of it—though there are many facts which point strongly to this latter fact. It has been looked upon as a contagious disease, because it often affects a large number of the inmates of asylums and other public institutions at the same time. This fact would indicate a general operating cause, quite as well as a contagion, as an origin for the epidemic. Then again, the natural history and course of the disease have not been sufficiently studied, and we can not be sure that it is not, in a degree, self-limited. The large number of local applications which have from time to time been recommended as specifics for trachoma—embracing every known astringent in the materia medica—is *prima-facie* evidence that there is no one remedy in which the whole profession has confidence. Attacks of trachomatous inflammation subside under all kinds of treatment, caustic, emollient, mildly and strongly astringent; and there are many cases, as all of us know to our chagrin, which have not improved, and which even got worse, under any kind of treatment, which have gone on to as favorable termination, without local interference, as have the cases where we have used our favorite remedy. That the profession is still looking for a reliable remedy for trachoma is sufficiently evidenced by the great interest felt in the results of the jequirity treatment. The highly interesting and instructive symposium in the last number of these ARCHIVES shows this,

but shows also that even jequirity leaves much to be desired. In fact, from a careful reading of these views, the impression is strong in my mind that jequirity is not so much a remedy *for trachoma*, as for the *results* of trachoma.

If trachoma *is* a mere local disease there can be no reason why the negroes who have the same environment as the Irish, for example, in regard to habitations, food, light, etc. should not have it in the same degree. When I was a boy, a railway was built through East Tennessee, in the construction of which both the Irish and negroes were employed. My father, who was a physician and practised among them, told me that chronic sore eyes were very common among the Irish (and we all know what that was), whereas such affections of the eyes were not met with among the negro laborers. And it was there that, at the beginning of my professional career, my attention was first directed to the absence of trachoma in the negro, though it was very common among the whites.

For a number of years the thought has been growing upon me that the trachoma-granule, follicle, or whatever name we may choose to call it by, is a deposit of material which is analogous in its character to tubercle. At least they both seem to have this in common—that when they disappear the tissue in which they are imbedded is destroyed, and a cicatrix is the result.<sup>1</sup> There is another similarity also in the successive crops of these deposits which may occur. I am inclined to regard each fresh attack of trachomatous inflammation as the manifestation of a fresh deposit, and where we have a series of them, as we often do, through a number of years with these resultant cicatrices, we have that total destruction of the mucous membrane so commonly met with in the ancient cases. No other inflammation of the conjunctiva shows any such destructive tendency except the diphtheritic.

In the treatment of trachoma, hitherto our attention has been principally directed to the inflammatory symptoms which accompany it, to the *conjunctivitis*, but should the views now advanced, and seemingly supported by an array

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<sup>1</sup> Similar views are held, I believe, by the younger Sichel.

of facts, be found correct, we should begin the study of trachoma from a new standpoint, and our therapeutic agencies will have to be directed to the prevention of the trachomatous deposit, and the general condition of the patient will receive first attention.

Since our failure to cope with it as a local disease has been so lamentable, we might try what our success will be when it is treated as a dyscrasic affection. Local applications, however, would even under these circumstances not be neglected in combating the inflammatory complications.

Of the *tumors* of the conjunctiva, one case of *lipoma*, from the comparative rarity of its occurrence, may be worthy of being placed on record.

It was on the right eye of a colored girl, twenty years of age. She said she had had a small lump at the outer corner of this eye since birth. It had remained about the size of a pea until the last year or two, when it began to grow rather rapidly. It extended forward in the palpebral space to within six millimetres of the corneal margin, and backward beyond the equator, and was freely movable on the sclera, and the conjunctiva was slightly movable over it, except at the centre, where it was fixed. There was no pain or inflammation, but latterly the movements of the ball outward were somewhat impeded, and caused a feeling of discomfort. An incision was made in the conjunctiva over it, and where it was adherent dissected off. The tumor was then enucleated without difficulty. The wound healed kindly, and only a small scar remained. The tumor measured  $2\frac{1}{2}$  cm. in length, by  $1\frac{1}{2}$  in breadth, and was  $\frac{3}{4}$  cm. thick.

A histological examination showed it to be purely lipomatous in its structure.

Among diseases of the CORNEA, we find in the negro a disproportionately large number of inflammations of all kinds, as we should expect would be the case in a race so decidedly "strumous," and *parenchymatous keratitis*, with Hutchinson's teeth, is met with, though not more frequently than among the whites.

Of IRITIS the percentage among the negroes is twice that among the whites. The large amount of pigment in the uveal tract would cause us to suspect some modification of

inflammation in that tissue, and our tables show an increased liability to inflammation on the part of the iris. On the other hand, *choroiditis* and *cyclitis* do not appear to be relatively so frequent. The percentage of *syphilitic iritis* in the negroes was not greater, as far as could be determined, than among the whites. As regards the prognosis of inflammation of the uveal tract in negroes, it is very difficult in a dispensary service to form reliable opinions; but I do not think it is so unfavorable as Dr. C. S. Bull seems to believe it is. Certainly many cases yield as promptly to treatment and make as favorable recoveries as any cases among the white population.

I saw one case of what I took to be *tubercle* of the iris and ciliary body. Unfortunately the patient passed from observation before a positive diagnosis could be made.

It was in the left eye of a mulatto girl, seventeen years of age. She had noticed trouble in that eye for some weeks before I saw her. There was a sharply circumscribed tumor—nodular, and with fine vessels running over its surface—at the base of the upper part of the iris, measuring  $2\frac{1}{2}$  mm. in width and 3 mm. in length from above downward, and reaching nearly to the posterior corneal surface. There was much ciliary injection and pain. In a week from the time I first saw her, a swelling of the adjoining sclera was observed, which was gradually increasing up to the time she disappeared from observation. As she showed other symptoms of tuberculosis, I was inclined to regard this tumor of that nature.

The case of a *large tubercular tumor of the choroid*, occurring in a negro girl, I have reported in full in vol. xiii., No. 4, of these ARCHIVES.

Of *sarcomatous tumors* of the choroid, I have had one in the negro man, which in its history and course did not differ in any important particulars from the cases usually met with. The patient was lost sight of after the enucleation, and I have no knowledge as to whether it returned or not. It was a pigmented sarcoma, though not more so than I have seen in the white race, and was confined to the anterior portion of the choroid.

Diseases of the LACHRYMAL apparatus appear of about the same frequency in the two races. The same may be said of CATARACT.

While the *paralyses of the* OCULAR MUSCLES are met with nearly equally in whites and negroes, *strabismus convergens* is comparatively rare in the negro. There were thirty-six "white" cases, and only three "colored." Refractive troubles being, as we shall see, less common among the colored race, this fact seems to support the theory of the dependence of strabismus on errors in refraction.

In LID AFFECTIONS a relative excess of *blepharitis marginalis* is noted among the whites, while *chalazia* are about twice as frequent in the negro. I would observe in passing that the orbicularis muscle is very strongly developed in some of this race, a fact to be taken account of in operations without an anæsthetic.

SYMPATHETIC OPHTHALMIA probably affects the two races equally.

The negroes are not more liable to *retinitis pigmentosa* than the whites. They are subject to *neuro-retinitis* and to *retinitis albuminurica*. There was one case of *glioma of the retina*, in a negro girl four years old. When first seen, the tumor had already burst through the walls of the globe. The optic nerve was not affected beyond the lamina cribrosa, and there was no return of the growth five months after the operation, when death occurred from meningitis consequent upon mastoid disease due to chronic purulent inflammation of the middle ear.

GLAUCOMA, especially the *chronic simple form*, is very frequent among the negroes, more so, it would seem, than among the whites.

Of REFRACTIVE anomalies, much fewer cases were observed among the negroes than among the whites. We must, however, not conclude too hastily from this that they do not exist in the same proportion. I am inclined to think that hypermetropia is to be found to about equal extent in both races, but the asthenopia attendant upon this condition, and which brings them to examination, is not brought out in the negro to the same extent as in the whites of the

same social status. But it is certain that *myopia* has not yet got such a hold on the negro as upon the white race. What effect systematic education is going to have upon the development of this condition we are not yet in a position to state with any degree of positiveness. I am making what observations my opportunities allow on this point, and may be able to report upon it in the future. Only six cases of "colored" *myopia* were noted, whereas the whites had eighteen.

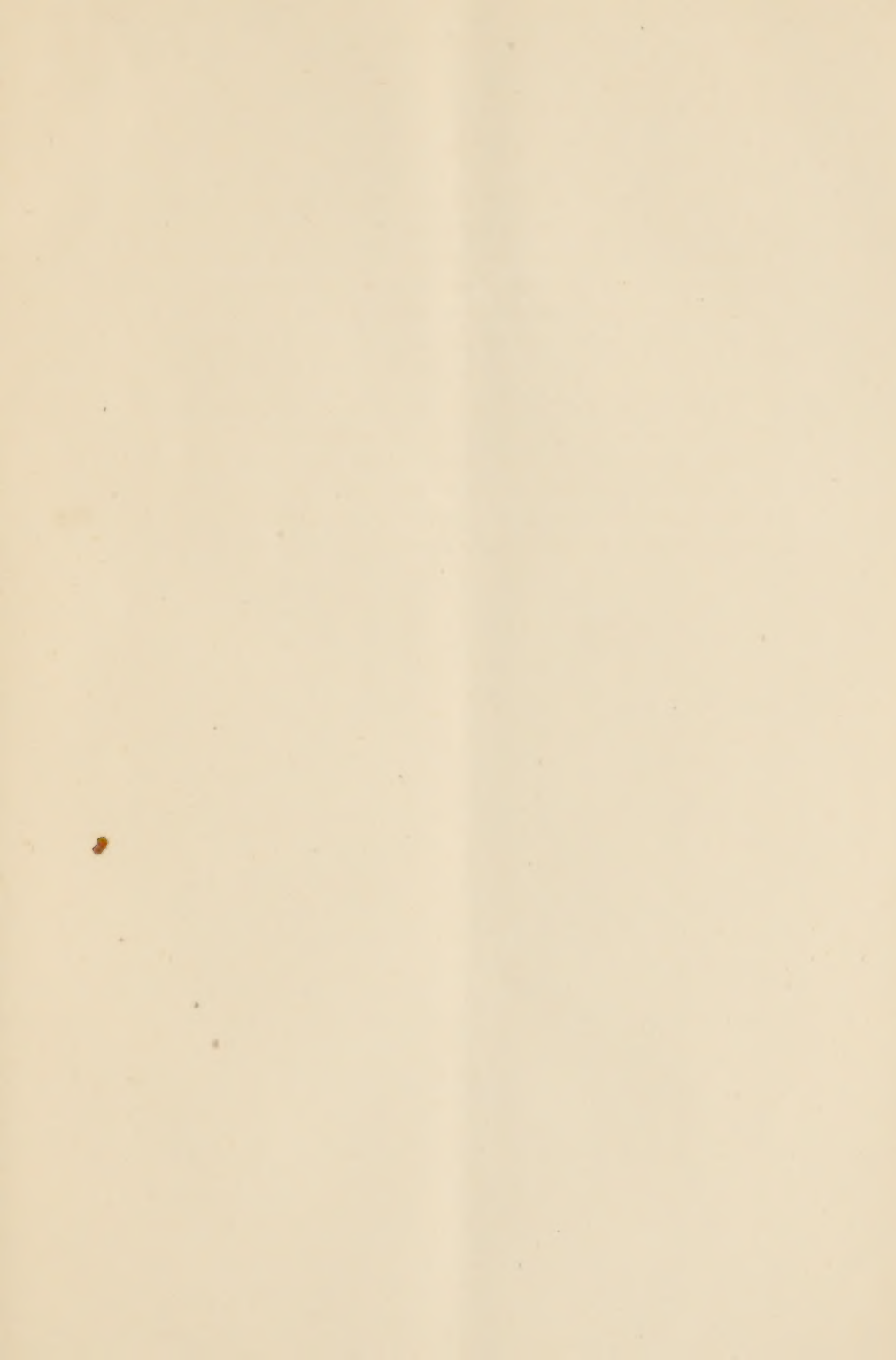
Several cases of *night-blindness* were observed. There was no exciting cause of a special nature discoverable. I was therefore compelled to fall back upon the supposition of some form of malnutrition as an origin for the condition. In three cases the collections of small air bladders on the conjunctiva, noticed by other observers in such cases, were present.

*Operations.*

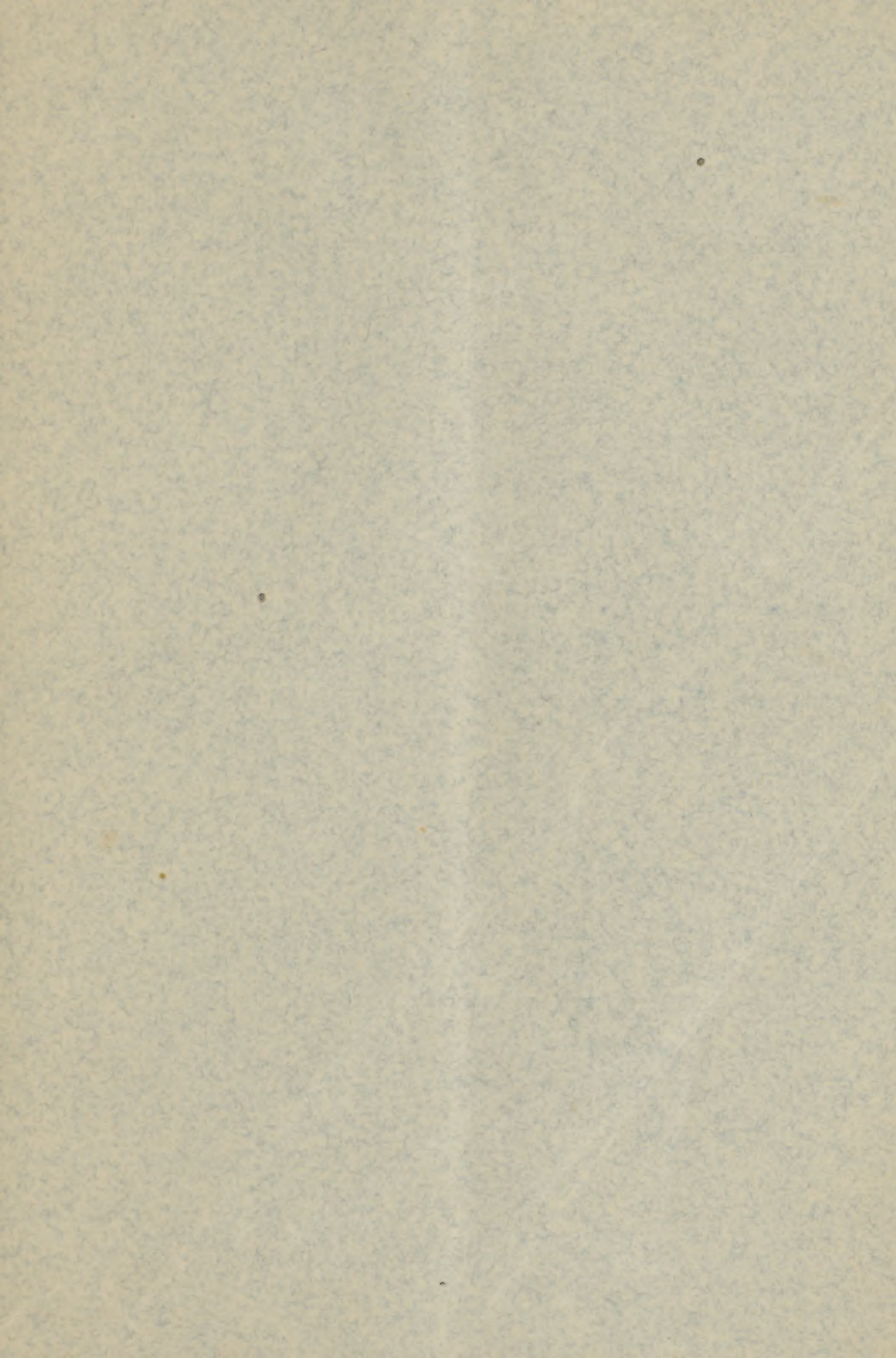
	White	Colored
Extraction of cataract . . . . .	11	23
Discision " " . . . . .	3	4
Excision of chalazion . . . . .	17	42
Enucleation of eyeball . . . . .	13	14
Operations for entropion . . . . .	5	
"    on lachrymal apparatus . . . . .	24	14
Removal of foreign bodies in cornea . . . . .	10	8
Iridectomy . . . . .	15	18
Iritomy . . . . .		2
Detachment of ant. synechia . . . . .	1	1
Abscess of lids opened . . . . .	5	3
Operation for strabismus convergens . . . . .	27	2
"    "    "    divergens . . . . .	1	
Removal of conjunctival tumor . . . . .		3
"    "    tumor from brow . . . . .		2
"    "    "    inner canthus . . . . .	1	1
"    "    "    lids . . . . .	1	3
Division of outer canthus . . . . .	2	
Optico-ciliary neurotomy . . . . .		1
Removal of pterygium . . . . .	3	4
Tattooing of cornea . . . . .		5
Saemisch's operation . . . . .		1
Excision of staphyloma . . . . .	1	
Plastic operation for entropion . . . . .		1
Detachment of symblepharon . . . . .		1
Sclerotomy . . . . .		1

Operation for ptosis . . . . .	2	
Removal of myxoma from o. n. . . . .	1	
	<hr/>	<hr/>
Total . . . . .	145	155

REMARKS.—Of the eleven *extractions* of *cataract* in the whites there was one failure, due to constant vomiting for forty-eight hours after the operation. Of the twenty-three in the negroes two eyes were lost through suppurative panophthalmitis. Both cases were in women. One died two weeks after the operation, and the other had been bed-ridden for four years. I should state that these operations were undertaken only at the earnest solicitation of the patients. I am satisfied from my experience that, other things being equal, the negro offers as good a general prognosis in eye-operations as the white race, though I am inclined to think they are rather more liable to reactions on the part of the iris after extractions.







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